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"5629081"	1
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Exemplary Claim Number: 1

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5571876S	0
("5582682" OR "4678700" OR "5571876")[PN].USPT.	3
((5582682 OR 4678700 OR 5571876)[PN]).USPT.	3

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**Search Results - Record(s) 1 through 3 of 3 returned.****1. Document ID: US 5582682 A**

L2: Entry 1 of 3

File: USPT

Dec 10, 1996

US-PAT-NO: 5582682

DOCUMENT-IDENTIFIER: US 5582682 A

**\*\* See image for Certificate of Correction \*\***

TITLE: Process and a composition for making cellulosic composites

DATE-ISSUED: December 10, 1996

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ferretti, Arthur	Silverton	OR	97381-0309	

US-CL-CURRENT: 162/10; 156/62.2, 156/62.4, 162/100, 162/11, 162/12, 162/13, 162/147,  
162/174, 162/175, 162/189, 162/223, 162/224, 162/225, 162/DIG.9, 264/122, 264/123,  
264/124

## ABSTRACT:

The specification discloses an unorthodox system for manufacturing strong, light-weight and weather-resistant cellulosic composite materials from discarded paper and newsprint, and papermill sludge--and from an unlimited variety of particulated fibrous lignocellulosics--without the use of an extrinsic adhesive. Both the matrix-forming resin and the fiber-substrate, which comprise the entire composite, are spontaneously created in situ at ambient conditions by the ammoniation of a mixture of a protein-containing material and a particulated cellulosic. Heating an article shaped from such a mixture to above 175.degree. C. polymerizes the resin and bonds the fiber-substrate into a cellulosic composite product. Also disclosed is a process for manufacturing reinforced and laminated composites as well as a composition which simplifies the production of both cellulosic composites and all-biomass thermosetting resins.

18 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Claims	Fig.	Review	Classification	Date	Reference	Sequences	Attachments	Claims	PMAC	Draw Desc	Image
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**2. Document ID: US 5571876 A**

L2: Entry 2 of 3

File: USPT

Nov 5, 1996

US-PAT-NO: 5571876

DOCUMENT-IDENTIFIER: US 5571876 A

TITLE: Article containing a water-dispersible adhesive blend composition

DATE-ISSUED: November 5, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Miller; Richard A.	Kingsport	TN		
Parsons, III; Theron E.	Kingsport	TN		
Montgomery; Mark A.	Kingsport	TN		

US-CL-CURRENT: 525/437; 428/480, 428/481, 525/444, 528/277, 528/279, 528/288,  
528/291, 528/293, 528/295

ABSTRACT:

Disclosed is a water-dissipatable or dispersible adhesive composition that is useful in forming paper articles and other products that can be recycled through repulping in both neutral and alkaline media. The water-dispersible adhesive composition is preferably a hot melt adhesive that is a low molecular weight, branched copolyester containing a sulfomonomer. Additional utility for the invention resides in the manufacture of recyclable articles where insolubility in body fluids combined with solubility in tap water are required.

7 Claims, 0 Drawing figures  
Exemplary Claim Number: 1

Full	Title	Abstract	Find	Review	Classification	Date	Reference	Sequences	Attachments	Claims	Page	Drawings	Images
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3. Document ID: US 4678700 A

L2: Entry 3 of 3

File: USPT

Jul 7, 1987

US-PAT-NO: 4678700

DOCUMENT-IDENTIFIER: US 4678700 A

TITLE: Fibrous composite materials

DATE-ISSUED: July 7, 1987

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
McAloon; Kevin T.	Cheshire			GB2
Brew; Allan T.	Cheshire			GB2

US-CL-CURRENT: 428/198; 162/3, 427/215, 428/307.3, 428/324, 428/360, 428/367,  
428/408, 428/414, 428/426, 428/429, 428/448, 428/450, 428/457, 428/500, 428/537.1,  
428/537.5, 428/920, 428/921, 442/136, 442/179, 442/68

ABSTRACT:

A fibrous composite material comprising carbon fibres and chemically delaminated vermiculite lamellae and production of the material by applying a suspension (preferably an aqueous suspension) of the lamellae to carbon fibres and removing the liquid medium from the suspension. The composite material is useful for the insulation and fire-protection of substrates.

13 Claims, 0 Drawing figures

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**DATE: Friday, June 13, 2003**   [Printable Copy](#)   [Create Case](#)

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result set

*DB=USPT; PLUR=YES; OP=ADJ*

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6284680 or 5733625 or 5910357)[pn]

10   L1

END OF SEARCH HISTORY

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**Search Results - Record(s) 1 through 1 of 1 returned.**☒ 1. Document ID: US 4258849 A

L2: Entry 1 of 1

File: USPT

Mar 31, 1981

US-PAT-NO: 4258849

DOCUMENT-IDENTIFIER: US 4258849 A

TITLE: Flushable towelette

DATE-ISSUED: March 31, 1981

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Miller; Gerald D.	Belle Mead	NJ		

US-CL-CURRENT: 206/210; 442/166

## ABSTRACT:

Nonwoven fibrous sheets bonded with polyvinyl alcohol, intended for use in pre-moistened condition as skin cleansing tissues, are folded and packaged in closed containers or in individual sealed water impervious envelopes; said packaged sheets being maintained in contact with a dilute aqueous solution of boric acid. The boric acid imparts improved wet tensile strength to the sheet during storage and use by the consumer but may be safely disposed of, after use, by flushing in plain water without danger of clogging the plumbing system. Instead of boric acid solution, one may employ for the indicated purpose a non-alkaline aqueous solution of a salt which acts as a precipitating or gelling agent for polyvinyl alcohol, said salt being one having an acid to neutral pH on hydrolysis.

6 Claims, 0 Drawing figures  
Exemplary Claim Number: 1

Full Title Abstract First Review Classification Date References Sequences Attachments

GPO Drawings Image

Generate Collection

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**Search Results - Record(s) 1 through 2 of 2 returned.****1. Document ID: US 4425849 A**

L1: Entry 1 of 2

File: USPT

Jan 17, 1984

US-PAT-NO: 4425849

DOCUMENT-IDENTIFIER: US 4425849 A

TITLE: Primer assembly

DATE-ISSUED: January 17, 1984

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Jorgenson; Gordon K.	Dollard des Ormeaux			CA

US-CL-CURRENT: 102/275.12; 102/200, 102/202.12, 102/322

## ABSTRACT:

A primer assembly is provided for use in vertical boreholes wherein the primer charge is initiated by means of electric blasting caps, the electric caps, in turn, being initiated electromagnetically. A covered, cup-shaped primer assembly contains a toroid transformer element and connected electric blasting cap in detonating relationship with a primer explosive charge. The assembly is arranged to receive therethrough a looped wire conductor which conductor passes freely through the toroid transformer. When an energy source is coupled to the looped conductor, a magnetic flux is induced in the toroid transformer which sets off the cap and primer charge. The assembly may be passed freely or slid along the looped conductor to any location in the borehole. The assembly permits the use of electric time-delay, deck-charge blasting without the usual hazards associated with normal electric cap blasting.

10 Claims, 4 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 2

**2. Document ID: US 4245744 A**

L1: Entry 2 of 2

File: USPT

Jan 20, 1981

US-PAT-NO: 4245744

DOCUMENT-IDENTIFIER: US 4245744 A

TITLE: Polyvinyl acetate latex impregnated towelette

**WEST**[Generate Collection](#)[Print](#)**Search Results - Record(s) 1 through 1 of 1 returned.****1. Document ID: US 4362781 A**

L2: Entry 1 of 1

File: USPT

Dec 7, 1982

US-PAT-NO: 4362781

DOCUMENT-IDENTIFIER: US 4362781 A

TITLE: Flushable premoistened wiper

DATE-ISSUED: December 7, 1982

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Anderson; Ralph L.	Boothwyn	PA		

US-CL-CURRENT: 442/159; 15/104.93, 15/209.1, 162/168.1, 162/181.2, 428/498, 428/514,  
428/913

## ABSTRACT:

Pre-moistened wiper comprising a nonwoven web impregnated with a modified guar gum and wet with an aqueous lotion containing borate ions.

6 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Class	Foot	Recom	Classification	Date	Reference	Sequences	Attachments	Claims	File	Date	Image
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<u>L2</u>	4362781[pn]	1	<u>L2</u>
<u>L1</u>	4362781	23	<u>L1</u>

END OF SEARCH HISTORY

DATE-ISSUED: January 20, 1981

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Daniels; Wiley E.	Easton	PA		
Davidowich; George	Dunellen	NJ		
Miller; Gerald D.	Belle Mead	NJ		

US-CL-CURRENT: 206/210; 442/166

## ABSTRACT:

Nonwoven fibrous sheets impregnated with latices of polyvinyl acetate or its copolymers containing polyvinyl alcohol, intended for use in pre-moistened condition as skin cleansing tissues, are folded and packaged in closed containers or in individual sealed water impervious envelopes; said packaged sheets being maintained in contact with a dilute aqueous solution of a precipitating or gelling agent for polyvinyl alcohol, such as boric acid. The agent imparts improved wet tensile strength to the sheet during storage and use by the consumer but permits the sheet to be safely disposed of, after use, by flushing in plain water without danger of clogging the plumbing system.

5 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Abstract	Final	Review	Classification	Date	Reference	Sequences	Attachments
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**Search Results - Record(s) 1 through 8 of 8 returned.****1. Document ID: US 5972805 A**

L3: Entry 1 of 8

File: USPT

Oct 26, 1999

US-PAT-NO: 5972805

DOCUMENT-IDENTIFIER: US 5972805 A

TITLE: Ion sensitive polymeric materials

DATE-ISSUED: October 26, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Pomplun; William Seal	Neenah	WI		
Mumick; Pavneet Singh	Appleton	WI		
Jackson; David Martin	Roswell	GA		
Chang; Yihua	Appleton	WI		

US-CL-CURRENT: 442/59; 442/152, 442/155, 442/165, 442/166, 442/167, 442/168,  
442/381, 442/400, 442/401, 525/176

## ABSTRACT:

A water soluble polymer comprising from about 25 weight % to about 90 weight % of an unsaturated carboxylic acid/unsaturated carboxylic acid ester terpolymer; from about 10 weight % to about 75 weight % of a divalent ion inhibitor and from about 0 weight % to about 10 weight % of a plasticizer is soluble in an aqueous environment having a divalent ion concentration less than about 50 ppm and a monovalent ion concentration of less than about 0.5 weight %. Also disclosed is a water dispersible fibrous fabric having a fibrous substrate and an effective amount of the binder distributed on the substrate and a method of making a water dispersible fibrous fabric.

22 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full Title Claims Print Review Classification Date Reference Sequences Attachments

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**2. Document ID: US 5935880 A**

L3: Entry 2 of 8

File: USPT

Aug 10, 1999

US-PAT-NO: 5935880

DOCUMENT-IDENTIFIER: US 5935880 A

TITLE: Dispersible nonwoven fabric and method of making same

DATE-ISSUED: August 10, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Wang; Kenneth Y.	Alpharetta	GA	30202	
Demeny; Leroy M.	Green Bay	WI	54313	
Pomplun; William S.	Neenah	WI	54956	
Mumick; Pavneet S.	Appleton	WI	54915	
Anderson; Ralph L.	Marietta	GA	30062	
Merker; Joseph F.	Alpharetta	GA	30201	

US-CL-CURRENT: 442/65, 162/112, 28/104, 442/154, 442/408

## ABSTRACT:

A soft, absorbent nonwoven fibrous web, such as a wet wipe, capable of dispersing in an aqueous environment into unrecognizable pieces, made by a method comprising the steps of forming a wet-laid nonwoven web from an aqueous slurry of fibers; hydraulically needling the wet-laid nonwoven web; partially drying the hydraulically needled web; applying a binder composition to one side of the web; creping the web such that interfiber adhesion is disrupted and z-direction fiber orientation is introduced; optionally applying a binder composition to the second side of the web; recreping the web; drying and curing the web; and, converting the dried and cured web into a wet wipe, dry wipe, or other absorbent article. In the case of a wet wipe, a solution containing about 100 ppm of calcium ion is applied to the web, such as in a preserving solution. In the case of a dry wipe, the calcium ion is added after the binder is added to the web, and the final product is stored in a dry state. The combination of processes produces a web having desirable tensile strength, bulk and softness during storage and use, yet will disperse in an aqueous environment into unrecognizable pieces.

43 Claims, 4 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 2

Full	Title	Class	First	Review	Classification	Date	Entered	Sequence	Attachments
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## 3. Document ID: US 5667635 A

L3: Entry 3 of 8

File: USPT

Sep 16, 1997

US-PAT-NO: 5667635

DOCUMENT-IDENTIFIER: US 5667635 A

TITLE: Flushable premoistened personal wipe

DATE-ISSUED: September 16, 1997

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Win; Maug Hla	Neenah	WI		
Burazin; Mark Alan	Appleton	WI		
Engel; Steven Alexander	Neenah	WI		
Kressner; Bernhardt Edward	Appleton	WI		
Lloyd; William Dee	Appleton	WI		
Schultz; Walter Theodore	Appleton	WI		

US-CL-CURRENT: 162/109; 162/158, 162/164.1, 162/166

## ABSTRACT:

A pre-moistened wet wipe provides functional wet strength in use, yet is dispersible if flushed down the toilet so that plumbing and sewage treatment facilities do not become clogged. A particular embodiment of the wipe consists of three uncreped through-air-dried tissue plies that are attached to each other by edge embossing. The two outer plies contain a wet strength agent to provide wet poke-through resistance to two large, centrally-located unembossed regions. The center ply contains no wet strength agent to aid in dispersibility. The embossing around the edges of the wipe further degrades the strength of the wipe in the embossed areas to assist in dispersibility when the wipe is flushed.

10 Claims, 6 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 6

Full	Title	Patent	Print	Review	Classification	Date	Reference	Sequence	Attachments
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Full	Draw Data	Image
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## 4. Document ID: US 5629081 A

L3: Entry 4 of 8

File: USPT

May 13, 1997

US-PAT-NO: 5629081

DOCUMENT-IDENTIFIER: US 5629081 A

TITLE: Premoistened, flushable, disposable and biodegradable wet wipes

DATE-ISSUED: May 13, 1997

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Richards; Marc F.	Dover	DE		
Wang; Kenneth Y.	West Chester	PA		

US-CL-CURRENT: 442/96; 424/404, 424/408, 442/118, 442/123

## ABSTRACT:

The present invention provides a pre-moistened, dispersible, and biodegradable wet wipe comprising a web of non-woven fibers contacted with a PVOH containing binder. The binder-contacted web further comprises an aqueous lotion solution comprising from about 0.1 to about 0.9 percent by weight of the lotion of boric acid and from about 5 to about 8 percent by weight of the lotion of an alkali metal bicarbonate. The resulting wet wipe has a pH between 7 and about 9 and a wet strength between about 8 and about 20 oz/in.

10 Claims, 3 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 3

Full	Title	Patent	Print	Review	Classification	Date	Reference	Sequence	Attachments
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Full	Draw Data	Image
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## 5. Document ID: US 5384189 A

L3: Entry 5 of 8

File: USPT

Jan 24, 1995

US-PAT-NO: 5384189

DOCUMENT-IDENTIFIER: US 5384189 A

TITLE: Water-decomposable non-woven fabric

DATE-ISSUED: January 24, 1995

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kuroda; Hideo	Kanagawa			JP
Sakamoto; Yasunori	Kanagawa			JP

US-CL-CURRENT: 442/352; 428/369, 428/913, 442/359, 604/364, 604/365, 604/372

## ABSTRACT:

A water-decomposable non-woven fabric comprises a water-dispersible fiber layer, each fiber of which is bound with one another using a water-soluble binder comprising an unsaturated carboxylic acid/unsaturated carboxylic acid ester copolymer in which 1 to 60 mole % of the repeating units derived from the unsaturated carboxylic acid is in the form of a salt and which is soluble in tap water but is insoluble in an aqueous solution containing not less than 0.5% by weight of a neutral inorganic salt comprising a monovalent ion; the water-dispersible fiber layer being composed of a mixture of 40 to 90% by weight of fibers having a crimp number of 19/inch or less, 10 to 60% by weight of fibers having a crimp number of 20/inch to 25/inch, and not more than 10% by weight of fibers having a crimp number of 26/inch or more; and a content of the binder in the non-woven fabric being 1 to 30% by weight relative to the total weight of the non-woven fabric. The non-woven fabric has a good feeling (high softness and good touch) and sufficient mechanical strength, and can be easily broken and dispersed by throwing into a large amount of water.

11 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Field	Title	Class	Field	Review	Classification	Date	Reference	Sequences	Attachments
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## 6. Document ID: US 5252332 A

L3: Entry 6 of 8

File: USPT

Oct 12, 1993

US-PAT-NO: 5252332

DOCUMENT-IDENTIFIER: US 5252332 A

TITLE: Pre-moistened flushable towlette impregnated with polyvinyl alcohol containing binders

DATE-ISSUED: October 12, 1993

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Goldstein; Joel E.	Allentown	PA		

US-CL-CURRENT: 424/402; 428/490, 428/74, 442/155

## ABSTRACT:

A packaged towelette comprising a sheet of nonwoven fibers impregnated with a polyvinyl alcohol containing binder and in contact with an aqueous solution containing borate ions and bicarbonate ions.

12 Claims, 0 Drawing figures  
Exemplary Claim Number: 1

Full	Title	Class	Front	Review	Classification	Date	Reference	Sequence	Attachment
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Full	Title	Class	Front	Review	Classification	Date	Reference	Sequence	Attachment
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## 7. Document ID: US 4372447 A

L3: Entry 7 of 8

File: USPT

Feb 8, 1983

US-PAT-NO: 4372447

DOCUMENT-IDENTIFIER: US 4372447 A

TITLE: Flushable towelette

DATE-ISSUED: February 8, 1983

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Miller; Gerald D.	Belle Mead	NJ		

US-CL-CURRENT: 206/210; 442/165

## ABSTRACT:

Nonwoven fibrous sheets bonded with polyvinyl alcohol, intended for use in pre-moistened condition as skin cleansing tissues, are folded and packaged in closed containers or in individual sealed water impervious envelopes; said packaged sheets being maintained in contact with a dilute aqueous solution of boric acid. The boric acid imparts improved wet tensile strength to the sheet during storage and use by the consumer but may be safely disposed of, after use, by flushing in plain water without danger of clogging the plumbing system. Instead of boric acid solution, one may employ for the indicated purpose a non-alkaline aqueous solution of a salt which acts as a precipitating or gelling agent for polyvinyl alcohol, said salt being one having an acid to neutral pH on hydrolysis.

3 Claims, 0 Drawing figures  
Exemplary Claim Number: 1

Full	Title	Class	Front	Review	Classification	Date	Reference	Sequence	Attachment
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Full	Title	Class	Front	Review	Classification	Date	Reference	Sequence	Attachment
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## 8. Document ID: US 4245744 A

L3: Entry 8 of 8

File: USPT

Jan 20, 1981

US-PAT-NO: 4245744

DOCUMENT-IDENTIFIER: US 4245744 A

TITLE: Polyvinyl acetate latex impregnated towelette

DATE-ISSUED: January 20, 1981

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Daniels; Wiley E.	Easton	PA		
Davidowich; George	Dunellen	NJ		
Miller; Gerald D.	Belle Mead	NJ		

US-CL-CURRENT: 206/210; 442/166

## ABSTRACT:

Nonwoven fibrous sheets impregnated with latices of polyvinyl acetate or its copolymers containing polyvinyl alcohol, intended for use in pre-moistened condition as skin cleansing tissues, are folded and packaged in closed containers or in individual sealed water impervious envelopes; said packaged sheets being maintained in contact with a dilute aqueous solution of a precipitating or gelling agent for polyvinyl alcohol, such as boric acid. The agent imparts improved wet tensile strength to the sheet during storage and use by the consumer but permits the sheet to be safely disposed of, after use, by flushing in plain water without danger of clogging the plumbing system.

5 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Abstract	Front	Review	Classification	Date	Reference	Sequences	Attachments
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Class	Index Desc	Image
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Generate Collection

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**Search Results - Record(s) 1 through 9 of 9 returned.**☒ 1. Document ID: US 5972805 A

L1: Entry 1 of 9

File: USPT

Oct 26, 1999

US-PAT-NO: 5972805

DOCUMENT-IDENTIFIER: US 5972805 A

TITLE: Ion sensitive polymeric materials

DATE-ISSUED: October 26, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Pomplun; William Seal	Neenah	WI		
Mumick; Pavneet Singh	Appleton	WI		
Jackson; David Martin	Roswell	GA		
Chang; Yihua	Appleton	WI		

US-CL-CURRENT: 442/59; 442/152, 442/155, 442/165, 442/166, 442/167, 442/168,  
442/381, 442/400, 442/401, 525/176

## ABSTRACT:

A water soluble polymer comprising from about 25 weight % to about 90 weight % of an unsaturated carboxylic acid/unsaturated carboxylic acid ester terpolymer; from about 10 weight % to about 75 weight % of a divalent ion inhibitor and from about 0 weight % to about 10 weight % of a plasticizer is soluble in an aqueous environment having a divalent ion concentration less than about 50 ppm and a monovalent ion concentration of less than about 0.5 weight %. Also disclosed is a water dispersible fibrous fabric having a fibrous substrate and an effective amount of the binder distributed on the substrate and a method of making a water dispersible fibrous fabric.

22 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Claims	Draw	Review	Classification	Date	References	Sequences	Attachments	Class	SMC	Draw Desc	Index
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☒ 2. Document ID: US 5935880 A

L1: Entry 2 of 9

File: USPT

Aug 10, 1999

US-PAT-NO: 5935880

DOCUMENT-IDENTIFIER: US 5935880 A

TITLE: Dispersible nonwoven fabric and method of making same

DATE-ISSUED: August 10, 1999

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Wang; Kenneth Y.	Alpharetta	GA	30202	
Demeny; Leroy M.	Green Bay	WI	54313	
Pomplun; William S.	Neenah	WI	54956	
Mumick; Pavneet S.	Appleton	WI	54915	
Anderson; Ralph L.	Marietta	GA	30062	
Merker; Joseph F.	Alpharetta	GA	30201	

US-CL-CURRENT: 442/65; 162/112, 28/104, 442/154, 442/408

## ABSTRACT:

A soft, absorbent nonwoven fibrous web, such as a wet wipe, capable of dispersing in an aqueous environment into unrecognizable pieces, made by a method comprising the steps of forming a wet-laid nonwoven web from an aqueous slurry of fibers; hydraulically needling the wet-laid nonwoven web; partially drying the hydraulically needled web; applying a binder composition to one side of the web; creping the web such that interfiber adhesion is disrupted and z-direction fiber orientation is introduced; optionally applying a binder composition to the second side of the web; recreping the web; drying and curing the web; and, converting the dried and cured web into a wet wipe, dry wipe, or other absorbent article. In the case of a wet wipe, a solution containing about 100 ppm of calcium ion is applied to the web, such as in a preserving solution. In the case of a dry wipe, the calcium ion is added after the binder is added to the web, and the final product is stored in a dry state. The combination of processes produces a web having desirable tensile strength, bulk and softness during storage and use, yet will disperse in an aqueous environment into unrecognizable pieces.

43 Claims, 4 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 2

Full	Title	Abstract	Print	Review	Classification	Date	Reference	Sequences	Attachment
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Full	Drawings	Image
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☒ 3. Document ID: US 5667635 A

L1: Entry 3 of 9

File: USPT

Sep 16, 1997

US-PAT-NO: 5667635

DOCUMENT-IDENTIFIER: US 5667635 A

TITLE: Flushable premoistened personal wipe

DATE-ISSUED: September 16, 1997

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Win; Maug Hla	Neenah	WI		
Burazin; Mark Alan	Appleton	WI		
Engel; Steven Alexander	Neenah	WI		
Kressner; Bernhardt Edward	Appleton	WI		
Lloyd; William Dee	Appleton	WI		
Schultz; Walter Theodore	Appleton	WI		

US-CL-CURRENT: 162/109; 162/158, 162/164.1, 162/166

## ABSTRACT:

A pre-moistened wet wipe provides functional wet strength in use, yet is dispersible if flushed down the toilet so that plumbing and sewage treatment facilities do not become clogged. A particular embodiment of the wipe consists of three uncreped through-air-dried tissue plies that are attached to each other by edge embossing. The two outer plies contain a wet strength agent to provide wet poke-through resistance to two large, centrally-located unembossed regions. The center ply contains no wet strength agent to aid in dispersibility. The embossing around the edges of the wipe further degrades the strength of the wipe in the embossed areas to assist in dispersibility when the wipe is flushed.

10 Claims, 6 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 6

Full	Title	Class	Print	Recom	Classification	Date	Reference	Sequences	Attachments
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Full	Class	Date	Image
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☒ 4. Document ID: US 5629081 A

L1: Entry 4 of 9

File: USPT

May 13, 1997

US-PAT-NO: 5629081

DOCUMENT-IDENTIFIER: US 5629081 A

TITLE: Premoistened, flushable, disposable and biodegradable wet wipes

DATE-ISSUED: May 13, 1997

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Richards; Marc F.	Dover	DE		
Wang; Kenneth Y.	West Chester	PA		

US-CL-CURRENT: 442/96; 424/404, 424/408, 442/118, 442/123

## ABSTRACT:

The present invention provides a pre-moistened, dispersible, and biodegradable wet wipe comprising a web of non-woven fibers contacted with a PVOH containing binder. The binder-contacted web further comprises an aqueous lotion solution comprising from about 0.1 to about 0.9 percent by weight of the lotion of boric acid and from about 5 to about 8 percent by weight of the lotion of an alkali metal bicarbonate. The resulting wet wipe has a pH between 7 and about 9 and a wet strength between about 8 and about 20 oz/in.

10 Claims, 3 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 3

Full	Title	Class	Print	Recom	Classification	Date	Reference	Sequences	Attachments
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Full	Class	Date	Image
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## 5. Document ID: US 5384189 A

L1: Entry 5 of 9

File: USPT

Jan 24, 1995

US-PAT-NO: 5384189

DOCUMENT-IDENTIFIER: US 5384189 A

TITLE: Water-decomposable non-woven fabric

DATE-ISSUED: January 24, 1995

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kuroda; Hideo	Kanagawa			JP
Sakamoto; Yasunori	Kanagawa			JP

US-CL-CURRENT: 442/352; 428/369, 428/913, 442/359, 604/364, 604/365, 604/372

## ABSTRACT:

A water-decomposable non-woven fabric comprises a water-dispersible fiber layer, each fiber of which is bound with one another using a water-soluble binder comprising an unsaturated carboxylic acid/unsaturated carboxylic acid ester copolymer in which 1 to 60 mole % of the repeating units derived from the unsaturated carboxylic acid is in the form of a salt and which is soluble in tap water but is insoluble in an aqueous solution containing not less than 0.5% by weight of a neutral inorganic salt comprising a monovalent ion; the water-dispersible fiber layer being composed of a mixture of 40 to 90% by weight of fibers having a crimp number of 19/inch or less, 10 to 60% by weight of fibers having a crimp number of 20/inch to 25/inch, and not more than 10% by weight of fibers having a crimp number of 26/inch or more; and a content of the binder in the non-woven fabric being 1 to 30% by weight relative to the total weight of the non-woven fabric. The non-woven fabric has a good feeling (high softness and good touch) and sufficient mechanical strength, and can be easily broken and dispersed by throwing into a large amount of water.

11 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full	Title	Claims	Front	Review	Classification	Date	Reference	Sequences	Attachments
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## 6. Document ID: US 5256417 A

L1: Entry 6 of 9

File: USPT

Oct 26, 1993

US-PAT-NO: 5256417

DOCUMENT-IDENTIFIER: US 5256417 A

TITLE: Water dispersible towelette impregnated with non-aqueous lotion formulations

DATE-ISSUED: October 26, 1993

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Koltisko; Bernard M.	Emmanuel	PA		

US-CL-CURRENT: 424/402; 428/490, 428/74

## ABSTRACT:

A packaged towelette composed of a sheet of nonwoven fibers impregnated with a binder which is a polyvinyl alcohol or an aqueous polymer emulsion containing polyvinyl alcohol as the protective colloid, the sheet being maintained in a wet condition within the package by contact with a nonaqueous lotion composition which is a liquid organic compound that is a nonsolvent for polyvinyl alcohol.

10 Claims, 0 Drawing figures  
Exemplary Claim Number: 1

Full	Title	Abstract	Print	Review	Classification	Date	References	Sequence	Attachments
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☒ 7. Document ID: US 5252332 A

L1: Entry 7 of 9

File: USPT

Oct 12, 1993

US-PAT-NO: 5252332

DOCUMENT-IDENTIFIER: US 5252332 A

TITLE: Pre-moistened flushable towlette impregnated with polyvinyl alcohol containing binders

DATE-ISSUED: October 12, 1993

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Goldstein, Joel E.	Allentown	PA		

US-CL-CURRENT: 424/402; 428/490, 428/74, 442/155

## ABSTRACT:

A packaged towelette comprising a sheet of nonwoven fibers impregnated with a polyvinyl alcohol containing binder and in contact with an aqueous solution containing borate ions and bicarbonate ions.

12 Claims, 0 Drawing figures  
Exemplary Claim Number: 1

Full	Title	Abstract	Print	Review	Classification	Date	References	Sequence	Attachments
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☒ 8. Document ID: US 4372447 A

L1: Entry 8 of 9

File: USPT

Feb 8, 1983

US-PAT-NO: 4372447

DOCUMENT-IDENTIFIER: US 4372447 A

TITLE: Flushable towelette

DATE-ISSUED: February 8, 1983

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Miller; Gerald D.	Belle Mead	NJ		

US-CL-CURRENT: 206/210; 442/165

## ABSTRACT:

Nonwoven fibrous sheets bonded with polyvinyl alcohol, intended for use in pre-moistened condition as skin cleansing tissues, are folded and packaged in closed containers or in individual sealed water impervious envelopes; said packaged sheets being maintained in contact with a dilute aqueous solution of boric acid. The boric acid imparts improved wet tensile strength to the sheet during storage and use by the consumer but may be safely disposed of, after use, by flushing in plain water without danger of clogging the plumbing system. Instead of boric acid solution, one may employ for the indicated purpose a non-alkaline aqueous solution of a salt which acts as a precipitating or gelling agent for polyvinyl alcohol, said salt being one having an acid to neutral pH on hydrolysis.

3 Claims, 0 Drawing figures  
Exemplary Claim Number: 1

Full	Title	Abstract	Front	Review	Classification	Date	Reference	Sequences	Attachments
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☒ 9. Document ID: US 4245744 A

L1: Entry 9 of 9

File: USPT

Jan 20, 1981

US-PAT-NO: 4245744

DOCUMENT-IDENTIFIER: US 4245744 A

TITLE: Polyvinyl acetate latex impregnated towelette

DATE-ISSUED: January 20, 1981

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Daniels; Wiley E.	Easton	PA		
Davidowich; George	Dunellen	NJ		
Miller; Gerald D.	Belle Mead	NJ		

US-CL-CURRENT: 206/210; 442/166

## ABSTRACT:

Nonwoven fibrous sheets impregnated with latices of polyvinyl acetate or its copolymers containing polyvinyl alcohol, intended for use in pre-moistened condition as skin cleansing tissues, are folded and packaged in closed containers or in individual sealed water impervious envelopes; said packaged sheets being maintained in contact with a dilute aqueous solution of a precipitating or gelling agent for polyvinyl alcohol, such as boric acid. The agent imparts improved wet tensile strength to the sheet during storage and use by the consumer but permits the sheet to be safely disposed of, after use, by flushing in plain water without danger of clogging the plumbing system.

5 Claims, 0 Drawing figures

Exemplary Claim Number: 1

Full Title Citation First Review Classification Date References Sequences Attachments

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Term	Documents
"4245744"[USPT]	1
4245744S	0
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"5629081"[USPT]	1
5629081S	0
"5384189"[USPT]	1
5384189S	0
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<u>L11</u>	l1 and l8	58	<u>L11</u>
<u>L10</u>	l1 and l8L9	0	<u>L10</u>
<u>L9</u>	l2 and l3 and l4 and l6 and l7	3803	<u>L9</u>
<u>L8</u>	sodium sulfate or sodium sulphate	74253	<u>L8</u>
<u>L7</u>	water or aqueous	2403289	<u>L7</u>
<u>L6</u>	polyvinyl alcohol	96117	<u>L6</u>
<u>L5</u>	polymeric same binder	24020	<u>L5</u>
<u>L4</u>	fibers or fibres	821203	<u>L4</u>
<u>L3</u>	nonwoven or non-woven or unwoven or un-woven	93287	<u>L3</u>
<u>L2</u>	web or composite	699693	<u>L2</u>
<u>L1</u>	wet same wipe	2046	<u>L1</u>

END OF SEARCH HISTORY